Smart Readiness Indicator of Buildings
First Stakeholder Meeting, 7 June 2017
Albert Borschette Congress Center, Rue Froissart 36, Brussels

(The meeting was non-public and upon invitation only, and this meeting was recorded)

Opening of the workshop by Sylvain Robert – Policy Officer EPBD in the Energy Efficiency unit at EC DG ENERGY

Sylvain Robert opens the workshop and points at the importance of the topic for the evolution of the Directive on the Energy Performance of Buildings. He welcomes all interest in the topic and the study and the various areas showing their interest, like the EPBD committee, Member States, industry, local authorities, NGOs and researchers. This meeting is the first stakeholder meeting of the technical study that was launched in March, in order to investigate what shape a potential smart readiness indicator could take, and how it could be evaluated or calculated in real buildings.

Mr. Robert frames the study in the ongoing legislative process: The European Commission proposal was tabled in November 2016, and on the basis of this proposal discussions have been taking place and are still taking place at the European Parliament and the European Council. At some point, the Council will reach a consensus on the revision of the proposal, and in parallel the European Parliament will introduce amendments to the EC proposal in order for the revision to suit the recommendations expressed by the Members of Parliament. Only after a consensus has been reached, the shape of the smartness indicator - from a legal perspective – will become clear.

The aim of the technical study is to collect the technical material to feed the discussions between EC and the other institutions, and to be ready to implement the indicator in the way it will be defined in the final text.

Mr. Robert expresses his wish that stakeholders are strongly involved in the study and therefore invites the stakeholders to make themselves heard during the meeting and to collaborate to the study.

Presentations from the study team

Sarah Bogaert (EnergyVille/VITO) presented the agenda of the workshop, and presented the overall objectives and work plan of this study. Stijn Verbeke (EnergyVille/VITO) presented the proposed scope of the study and the various angles of the 'smartness' concept in the context of this study.

Stijn Verbeke (EnergyVille/VITO) gave an overview of existing Smart Building initiatives relevant for the SRI study. There are few initiatives linked to the indicator assessment. He stressed that most of the current initiatives are linked to grids, and mainly focus on demand response. An example highlighted is the French Smart Building Alliance READY2GRIDS scheme[1].

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[1] http://www.smartbuildingsalliance.org/commission/ready2grids

Mathias Uslar (OFFIS) presented the first findings from Task 1 of the SRI study, on "Mapping of Smart Ready Technologies". He presented the definition of "smart readiness service" and "smart readiness technology", and introduced the proposed taxonomy of indicator, domain, service and functionality level. The current scope of the study was given and the service list was briefly introduced. Stakeholders were encouraged to give feedback and comments on the first outcomes of this work (catalogue of services) as part of a technical working document that will be uploaded on the project website www.smartreadinessindicator.eu.

Paul Waide (WSE) and Kjell Bettgenhäuser (Ecofys) presented the work plan on respectively Task 2 and Task 4, "Towards a Smart Readiness Indicator". The main objective is to derive a viable harmonized SRI calculation method. A trade-off will be necessary between the net benefits of the smart services and their assessment (ease and cost). Multi-criteria assessment will be used in the study to do the grouping exercise; how much aggregation there is to be done is still an open question at this point. Smart readiness services will be selected and included (e.g. energy savings, Demand-Response (DR) capabilities, Indoor Environment Quality (IEQ), interoperability etc.), potentially a weighting method would be used for an aggregated indicator. Reference was made to the Point Systems study[2] (Task 2) as a useful source where Multi-Criteria Assessment (MCA) examples are included. The indicator could have a heuristic scale for end-users and a more detailed scale for assessors. It will be developed following an iterative process involving the various tasks.

Mr. Waide stressed the importance of input from stakeholders to collect information on costs and time needed for the assessment of the services and functionalities of the SRI, which will be important criteria to consider. Experience that can be shared on EPC (Energy Performance Certification) is also relevant for this task and this study. Further questions were posed by Mr. Waide, and the stakeholders were encouraged to actively give their feedback and comments.

Regarding task 4, Mr. Bettgenhäuser introduced the activities in Task 4, relating to the detailed impact assessment of the SRI. The approach includes the definition of reference variants of buildings, the determination of the energy demands and potentials of the reference variants, aggregation of individual building variants and calculation of scenarios, sensitivity analysis, development of other accompanying measures and policy actions. The envisioned scenario based approach (2020, 2030, 2050) was also presented. Four different building types together with five setups, for both residential and non-residential, will result in 20 different variants in three climate zones, which will result in 60 scenarios that will be investigated.

Presentations from external speakers

Peter Wouters (Communication Manager of EPBD Concerted Action) introduced the work of EPBD Concerted Action (CA) and stresses the interest of the EPBD CA to follow this study. The next event will take place in October 2017, in Romania, and two sessions will be dedicated to smart buildings.

Mariangiola Fabbri (BPIE) introduced the study conducted by BPIE on "Ready for Smart Buildings? An evaluation of the 'smart-built environment' in Europe". Based on five main elements (efficient and healthy, dynamic and self-learning control systems, renewable energy uptake, responsive energy system and dynamic operability) the readiness of the smart built environment in the EU is assessed, according to a (non-weighted) ranking and calculation method. The study concluded that no EU country is fully ready, but some Member States are

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[2] https://points-system.eu/welcome

frontrunners in each of the elements. EU's building stock is far from future proof to be able to integrate buildings that will be progressively more dynamic and smart. It is recommended that regulatory lock-in is prevented, to avoid the existence of barriers to integrate those buildings in the building stock.

Glenn Reynders (EnergyVille/KU Leuven) presented the findings from an ongoing study from IEA EBC Annex 67 on Energy Flexible Buildings. Mr. Reynders presented a definition of energy flexibility of a building (the ability to manage its demand and generation according to local climate conditions, user needs and grid requirements). Mr. Reynders stressed that there are various ways to define and quantify the flexibility a building can offer. According to the findings so far, quantification can be done either in a technology driven or a performance driven way. One other conclusion reached so far is that it is very difficult to come to one sole indicator describing the energy flexibility for all buildings, as this depends among other things on the time period considered and on boundary conditions. Therefore, a weighted average indicator could be an approach, and Annex 67 could provide guidelines and suggestions on weighting factors for this study.

Xavier Carlioz (CCI Nice Côte d'Azur) introduced the local initiative on 'Smart Grid Ready' Buildings Recommendations in the region of Nice Côte d'Azur and beyond. Mr. Carlioz presented 3 levels of smart grid ready buildings, which is similar to the French Smart Building Alliance: connected building, self-managed building and managed building. Furthermore, Mr. Carlioz introduced that they are working on economic data by building type and by Smart Grid Ready levels, and Smart Grids indicators and criteria.

Peter Wouters (BBRI) presented the lessons learned from QUALICHECK project and the resulting Source Book for improved compliance of Energy Performance Certificates (EPCs) of buildings. The presentation focused on EPC and tried to make a parallel with SRI. Depending on the requirement level, going from informative to a strong requirement, an indicator will have a different impact on decisions. It is important to have a good insight in the data that are needed for an indicator and those data should be easy to access. Sufficient lead time should be foreseen, to make sure that the stakeholders who will be using the indicator are able to follow appropriately. The recommendation was given that SRI should drive and not block innovation.

Dan Napar and Roland Ullmann (eu.bac) gave a presentation on "EN 15232 'Energy performance of buildings - Impact of Building Automation, Controls and Building Management' (module M10 as per M/480): Status and relevance for an SRI definition". Mr. Napar introduced the modular structure of M/480 CEN/TC371 (overarching, building as such, technical building systems and not under EPBD), and emphasized that the approach follows the energy principle of generation, storage and distribution. The four BAC energy efficiency classes of EN 15232 (labelled A to D) were presented in detail. Mr. Napar stressed that the role of BACS should be to ensure human comfort and maximise health, and that the energy consumption to obtain this goal should be minimal. Furthermore, Mr. Ullmann presented the aspects in EN 15232 that are relevant for the smartness indicator. The functional groups and points systems of EN 15232 and eu.bac system were introduced. Mr. Ullmann gave an example for the "functions and levels" of electrical storage charger. Moreover, it is mentioned that CEN/TC 247 may decide to open a work item on a flexibility indicator (relevant for SRI) and may also use the existing work item on "smart building" (which has not yet started) to extend the Energy Efficiency functional work (currently EN 15232).

Serge Noels (Copper Alliance) presented "IEC 60364-8 ED2 Low-voltage electrical installations - Part 1: Energy efficiency and Part 2: Smart Low-Voltage Electrical Installations: Status and relevance for SRI". IEC 60364-8 provides additional requirements, measures and recommendations for design, erection and verification of all types of low voltage electrical installation, while IEC/TS 62898-2 provides guidelines for operation of microgrids, both from Buildings to Grid perspective. Mr. Noels further gave examples on Prosuming Electrical Installation and Electrical Energy Management System.

Discussion[3]

Clarification on the potential link between SRI and EPC
There is no specific statement regarding the potential relation between EPC and SRI in the legal text, as it is proposed by the EC, so the EC is open on this issue. Both should be considered as autonomous processes with potential linkages between the two schemes. The way to make this connection (if and where relevant) could be assessed as part of the definition of the procedure for assessing the indicator.

Clarification on the future proofness and level of homogeneity of a SRI methodology
The technologies being targeted by an SRI are mostly ICT technologies, which is a fast moving area but also an area where there is homogeneity across the EU. The SRI methodogy should start from a common basis, so it can be assessed across the EU, however it should not prevent local national specificities to be taken into account during the rollout of the indicator (e.g. issues such as energy market regulations, self-consumption). Local policy makers and local authorities are invited to give proposals regarding this roll-out.
It is acknowledged that ICT technologies are constantly evolving, requiring a certain flexibility, both for the current development of the SRI and for potential updates beyond the study. The structure of the catalogue of smart ready services works in a technology independent way and an iterative process is used during the development of the indicator.

Discussion on the relation between the building characteristics and smartness
If the smartness of a building starts with its energy performance, it is considered essential by some organizations that the physical properties of a building are taken into account (e.g. the building envelope). The strong relationship was indeed confirmed between the characteristics of the building, especially in terms of energy efficiency, and the impact of smart technologies. These dimensions can be considered separately, but connections could be made between the two and the study will look into this.

Discussion on potential additional costs involved with SRI
Some organizations have concerns that an SRI will increase the costs of constructing smart buildings. However, the EC points at the many studies made available in the last years on the high cost-effectiveness of smart technologies. Reference was made to the Impact Assessment study underlying the EC proposal for amending the EPBD. This has shown that, with a minimal cost, the implementation of SRI would lead to significant energy savings and savings of energy expenditures at the level of end-users. Although upfront investment costs are required to deploy them, the payback time is among the shortest compared to many other measures. In this way more smartness can lead to benefits in terms of savings in energy and

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[3] *To start the discussion, a poll was organized (https://goo.gl/JlSWJ4). The poll will be kept open for stakeholders to share it with their network. Stakeholders can use it for their workshops and meetings, and the results can be sent upon request.*

costs for end-users, thereby also working towards the global objectives for EU in terms of energy savings.

In addition, the smartness indicator is not mandating any additional cost, as it is up to the building occupant/owner to decide whether or not to invest. Moreover, a potential increase of construction cost should not be considered independently from the additional benefits in terms of energy savings, wellbeing and health of energy-efficient buildings.

However, there is a cost involved for the assessment of the indicator itself. This is part of requirements to be taken into account in the methodology for calculating the indicator. It is anticipated that there may be several cost ranges, depending on the level of assessment, the needs of the user and possibly types of user, the level of smartness of the building, etc. But there is a clear prerequisite to have a low cost assessment for the building owner.

Discussion on the target audiences

It is recommended by various organizations to identify the various audiences which the SRI wants to address. Based on the feedback retrieved from science and industry that more smartness could lead to benefits for end-users in terms of savings in energy and costs, the aim is to raise awareness among the end-users (home owners and tenants, occupants), for them to be keen on investing in smartness. The remark was made by a consumer organization that even within this end-user group, it may be relevant to distinguish between different types with various characteristics.

Analogy was made with EPC which is recognized to reflect the energy performance of the building and has an impact on the values of the building for the purchasers. A consumer organization however brings up that research in the past looked at how consumers could potentially get confused when adding environmental issues into energy related EPC, and they advise that in order to engage occupants, it is important that the way of communicating is not too complex. The organization is invited to share the work/experience referred to with the project team.

Another comment made by an organization is that the SRI should apply in different ways depending on the type of buildings, because the technologies used in different buildings vary depending on the building type. For certain types of buildings that are highly sophisticated, SRI aspects are already part of their attention anyway.

Discussion on the scope of the SRI

The initial scope of the SRI for this technical study has been presented by the project team, however the EC makes clear that the way the indicator will be consolidated is still open, e.g. regarding how the various dimensions will be taken into account. Additional benefits, health, wellbeing, comfort, safety etc. may be considered but it is not yet assessed how. At least, some of these shall be considered as boundaries conditions in the evaluation of the indicator.

Clarification on the naming of the study

Note has been taken of the remark that citizens may not well understand the meaning of "smart readiness". Regarding the terminology "smartness" or "smart readiness", in the EC proposal the name is "smartness" indicator, in the last provision of the presidency of the council, it is "smart readiness" indicator but this is not yet final.

Closing of the workshop by Mrs. Paula Rey García, head of the buildings team in the Energy Efficiency unit at DG ENERGY

Ms. Paula Rey García closes the workshop by stressing how important this forward looking work on smart buildings and the smart readiness indicator is for the European Commission DG Energy, and how at the same time, it does not prevent the continuous work on the implementation of the current Directive. EPC provisions are kept unchanged, and by cooperating with EPBD Concerted Action, Member States, financial institutes and others the quality of the current methods and assessments of EPC is being made more homogeneous across EU.

Ms. Rey García repeats that we are currently in the scoping phase, asking questions, testing ideas, consulting with experts and collecting knowledge, and this is done in a quite open way inviting stakeholders to join this process in the next 1.5 years. We would like to have a broad view from different stakeholders, from experts and Member States, to define the indicator in a best possible way.

Next steps

In the following week, a technical working document will be uploaded on the project website with an invitation to stakeholders to share their advice and suggestions. A specific template will be created for collecting those feedbacks. Over summer, the project team will have the Task 1 report published for written comments from stakeholders.

Next meeting

The next stakeholder meeting is planned to be held in November or December 2017 (provisional).

List of participating organizations

ADENE
AIE
Boverket
BPIE
BRE
Building Regulation Office, Malta
CCI Nice Côte d'Azur
CECAPI & CAPIEL
CECED
CEN/TC247, CEN/TC371 CTL
Citizens Advice
Concrete Initiative
CSTB - CEN
EASME
EC DG CONNECT
EC DG ENERGY
Ecofys Germany
ECOS
ECTP
EHI European Heating Industry
ENEA
EnergyVille - KU Leuven
EPEE
ESMIG
ES-SO
EuroACE
European Builders Confederation
European Construction Technology Platform (ECTP)
European Copper Institute
European Heat Pump Association
European Partnership for Energy and the Environment
European Property Federation
Eurovent
Eurowindoor
EVIA
GdW
IDAE
INIVE EEIG
LightingEurope
Ministry of construction and physical planning (PT)
Ministry of Economic Affairs and Energy (Germany)
Ministry of Economics of the Republic of Latvia
Ministry of the Economy - Luxembourg
Norwegian Water Resources and Energy Directorate (NVE)
OFFIS
Orgalime
Österreichisches Institut für Bautechnik
Philips Lighting
REHVA
Smart Energy Demand Coalition
Solar PowerEurope

SPW - DGO4 - Energie
University of Mons
Waide Strategic Efficiency Ltd